

Raluca Ilie

CONTACT INFORMATION	Space Science and Applications Group ISR-1, MS D466 Los Alamos National Laboratory Los Alamos, NM 87544, USA	<i>Phone:</i> (505)-665-4118 <i>E-mail:</i> rilie@lanl.gov
RESEARCH INTERESTS	My primary research interest is to gain better understanding of the controlling mechanisms for the solar wind-magnetospheric interactions, storm time inner magnetosphere (ring current, plasma sheet) dynamics and morphology and the physics of geomagnetic storms.	
EDUCATION	University of Michigan , Ann Arbor, Michigan USA <i>Department of Atmospheric, Oceanic and Space Sciences</i> Ph.D., Space and Planetary Physics, April 2010 Advisor: Michael W. Liemohn Dissertation Topic: " <i>Exploring storm time ring current formation and response on the energy input.</i> "	
	Eastern Michigan University , Ypsilanti, Michigan USA <i>Department of Physics and Astronomy</i> M.S., Physics, June 2005 Advisor: David D. Reid Dissertation Topic: " <i>The Myrheim Length Conjecture in Conformally Flat Spacetime.</i> "	
	University of Bucharest , Bucharest, Romania <i>Department of Physics</i> B.S., Theoretical Physics, June 2001 Advisor: Constantin Vrejoiu Thesis Topic: " <i>Propagation of Supra-luminal EM Waves in Dispersive Media.</i> "	
PROFESSIONAL EXPERIENCE	Los Alamos National Laboratory , Los Alamos, New Mexico, USA, (12/2010-Present) <i>Space Science and Applications</i> <u>Postdoctoral Research Associate</u> Investigations of the ring current dynamics using both data analysis and numerical modeling.	
	University of Michigan , Ann Arbor, Michigan, USA, (05/2010-11/2010) <i>Department of Atmospheric, Oceanic and Space Sciences</i> <u>Postdoctoral Research Fellow</u> Investigations of the ring current dynamics using kinetic model of the inner magnetosphere.	
	University of Michigan , Ann Arbor, Michigan, USA, (09/2005-04/2010) <i>Department of Atmospheric, Oceanic and Space Sciences</i> <u>Research Assistant</u> Theoretical derivations of new model formulations. Substantial code modifications. SWMF proficiency. Supercomputer usage. Extensive data analysis. Numerous data-model comparisons. Magnetic storm investigations. Group leadership and organization.	
	<u>Grader</u>	

AOSS 450 (Electricity and Magnetism), AOSS 470 (Solar-Terrestrial Relations), AOSS 105 (Our Changing Atmosphere).

Eastern Michigan University, Ypsilanti, Michigan USA, (09/2003-06/2005)

Department of Physics and Astronomy

Research Assistant

Theoretical development of the causal set theory.

Teaching Assistant

Prepared and taught undergraduate introductory labs on Mechanics and Electromagnetism.

Institute of Space Sciences, Bucharest, Romania (09/2001-06/2002)

Space Research Laboratory

Research Assistant

Research project on *Composition, Origin and the Interaction of Cosmic Radiation*.

**LEADERSHIP,
HONORS AND
AWARDS**

Geospace Environment Modeling Posdoctoral Fellowship, July 2010

Student Representative, Geospace Environment Modeling (GEM), December 2008-June 2010

Steering Committee Member, Geospace Environment Modeling (GEM), June 2008-June 2010

Organizing Committee Member, Michigan Geophysical Union, 2006

Member, American Geophysical Union (AGU), 2005-Present

Sigma Xi Graduate Research Award, Eastern Michigan University, April 2005

Graduate Assistant of the Year, Eastern Michigan University, April 2005

Recipient of a Scholarship from the Romanian Government, 1997 to 2001

PUBLICATIONS

1. **R. Ilie**, R. Skoug, H. Funsten, M. W. Liemohn, J. Bailey, M. Gruntman (2011), The impact of geocoronal density on ring current development, submitted to JASTP.
2. **R. Ilie**, M. W. Liemohn, G. Toth, R. Skoug (2011), Kinetic model of the inner magnetosphere with arbitrary magnetic field, *Journal of Geophysical Research*, in review.
3. C. Cattell, J. Dombeck, A. Preisch, S. Thaller, P. Vo, L. B. Wilson, J. Wygant, S. B. Mende, H. U. Frey, **Ilie, R.**, G. Lu (2011), Observations of a high-latitude stable electron auroral emission at 16 MLT during a large substorm, *Journal of Geophysical Research*.
4. M. W. Liemohn, **R. Ilie**, N. Y. Ganushkina, A. J. Ridley, J. U. Kozyra, M. F. Thomsen, J. E. Borovsky, Testing the necessity of transient spikes in the storm time ring current drivers, *Journal of Geophysical Research*.
5. **R. Ilie**, M. W. Liemohn, J. U. Kozyra, J. Borovsky (2010), An investigation of the magnetosphere-ionosphere response to real and idealized CIR events through global MHD simulations, *Proceedings of the Royal Society A*.
6. Ganushkina N. Yu, M. W. Liemohn, M. V. Kubyshkina, **R. Ilie**, H. J. Singer (2010), Distortions of the magnetic field by storm time current systems in Earth's magnetosphere, *Annales Geophysicae*, Volume 28, Issue 1, pp.123-140.
7. **R. Ilie**, M. W. Liemohn, A. J. Ridley (2010), Effect of smoothed solar wind inputs on global modeling results, *Journal of Geophysical Research*, Volume 115, Issue A1.
8. M. W. Liemohn, J.C. Zhang, M. F. Thomsen, J. E. Borovsky, J. U. Kozyra, and **R. Ilie** (2008), Plasma properties of superstorms at geosynchronous orbit: How different are they?, *Geophysical Research Letters*, 35, L06S06, doi:10.1029/2007GL031717.
9. **R. Ilie**, M. W. Liemohn, M. F. Thomsen, J. E. Borovsky, and J. Zhang (2008), Influence of epoch time selection on the results of superposed epoch analysis using ACE and MPA data, *Journal of Geophysical Research*, 113, A00A14, doi:10.1029/2008JA013241.

10. **R. Ilie**, G. B. Thompson, D. D. Reid, A numerical study of the correspondence between paths in a causal set and geodesics in the continuum (2006), *Class. Quantum Grav.* 23, 3275-3285.

PRESENTATIONS

1. **R. Ilie**, R. Skoug, H. Funsten, P. Valek, A. Glocer (2012), How the ion composition in the inner magnetosphere affects the geospace currents? (2012), ISSI, Bern, Switzerland, 2012.
2. **R. Ilie**, R. Skoug, H. Funsten, P. Valek, A. Glocer (2011), Inner magnetosphere ion composition: global modeling and TWINS observations, AGU Fall Meeting, San Francisco, CA, 2011.
3. P. Valek, P. Brandt, J. Goldstein, **R. Ilie**, D.J. McComas, H and O ENA observations of the 22 July 2009 Storm as observed by the TWINS mission J. Perez, R. Skoug (2011), AGU Fall Meeting, San Francisco, CA, 2011.
4. **R. Ilie**, R. Skoug, H. Funsten, M. W. Liemohn, J. Bailey, M. Gruntman (2011), The impact of geocoronal density on ring current development, ISROSES-II, Borovets Bulgaria, 2011.
5. **R. Ilie**, J. O. Kozyra, M. W. Liemohn, Periodicities in the solar wind and magnetosphere during High Speed Streams, GEM Workshop, Santa Fe NM, 2011.
6. **R. Ilie**, R. Skoug, H. Funsten, M. W. Liemohn, J. Bailey, M. Gruntman (2011), The role of neutral hydrogen density in ring current modeling, GEM Workshop, Santa Fe NM, 2011.
7. **R. Ilie**, R. Skoug, H. Funsten, M. W. Liemohn, J. Bailey, M. Gruntman (2011), Geocoronal models in inner magnetosphere modeling, TWINS team meeting, Los Angeles CA, 2011.
8. **R. Ilie**, G. Toth, M. W. Liemohn, R. M. Skoug, The effect of the magnetic field stretching on the development of the ring current, American Geophysical Union, Fall Meeting 2010, abstract SM31B-1871.
9. M. W. Liemohn, **R. Ilie**, D. de Zeeuw, N. Y. Ganushkina, Comparing Magnetospheric Cross-Field Current Systems In ICME And CIR/HSS Driven Storms, American Geophysical Union, Fall Meeting 2010, abstract SM13A-1788.
10. G. Toth, F. Fang, R. A. Frazin, T. I. Gombosi, **R. Ilie**, M. W. Liemohn, W. B. Manchester, X. Meng, D. J. Pawlowski, A. J. Ridley, I. Sokolov, B. van der Holst, G. Vichare, E. Yigit, Y. Yu, N. Buzulukova, M. H. Fok, A. Glocer, V. K. Jordanova, D. T. Welling, S. G. Zaharia, Improving the physics models in the Space Weather Modeling Framework, American Geophysical Union, Fall Meeting 2010, abstract SM51A-1757.
11. **R. Ilie**, M. W. Liemohn, J. U. Kozyra, J. Borovsky, What determines the transfer of periodicity seen in IMF Bz during CIR events to the magnetosphere?, GEM Workshop, Snowmass, CO, 2010.
12. **R. Ilie**, G. Toth, M. W. Liemohn, HEIDI Coupling into SWMF, GEM Workshop, Snowmass, CO, 2010.
13. **R. Ilie**, M. W. Liemohn, J. U. Kozyra, J. Borovsky, An investigation of the magnetosphere-ionosphere response to real and idealized CIR events through global MHD simulations, HSS-GI Workshop, Ambleside UK, September 2009.
14. **R. Ilie**, M. W. Liemohn, G. Toth, A. J. Ridley, Coupling HEIDI into the SWMF, Fall AGU Meeting, Abstract SH14A-06, 2009.
15. J. U. Kozyra, P. C. Brandt, N. Buzulukova, D. De Zeeuw, M. H. Fok, H. U. Frey, S. E. Gibson, **R. Ilie**, M. W. Liemohn, S. B. Mende, L. J. Paxton, L. Rastaetter, A. J. Ridley, M. F. Thomsen, Are Unusual Solar Wind Conditions in SC23-24 Triggering Changes in the Geospace Response to High Speed Streams? (Invited), Fall AGU Meeting, Abstract SM11A-1546, 2009.
16. **R. Ilie**, M. W. Liemohn, G. Toth, A. J. Ridley, Incorporating HEIDI into SWMF, CCHM-CWMM meeting, Hawaii, March 2009.

17. **R. Ilie**, M. W. Liemohn, A. J. Ridley, Preliminary results of coupling HEIDI into SWMF (one way coupling), IMC Finland, August 2008.
18. **R. Ilie**, M. W. Liemohn, A. J. Ridley, The influence of the transient spikes in the solar wind on the development of magnetic storms, talk presented during LANL Wednesday Seminar, September, 2008.
19. **R. Ilie**, M. W. Liemohn, A. J. Ridley, The Effect of Smoothed Solar Wind Inputs on Global Modeling Results, Fall AGU Meeting, Abstract SM11A-1573, 2008.
20. M. W. Liemohn, M. Jazowski, **R. Ilie**, M. F. Thomsen, J. E. Borovsky, Quantifying the Accuracy of Inner Magnetospheric Electric Field Descriptions With Data-Model Comparisons for All Intense Storms of Solar Cycle 23, Fall AGU Meeting, Abstract SM11A-1591, 2008.
21. A. J. Ridley, M. W. Liemohn, D. DeZeeuw, **R. Ilie**, I. Sokolov, G. Toth, Y. Yu, Improvements in the Space Weather Modeling Framework, Fall AGU Meeting, Abstract SA51A-1530, 2008.
22. **Ilie**, R., and M. W. Liemohn, Effectiveness of solar wind fluctuations in triggering a magnetic storm, GEM Workshop, Midway, Utah, June 18-22, 2007.
23. **Ilie**, R., M. W. Liemohn, M. Thomsen, J. Borovsky, and J. Zhang, The influence of epoch time selection when doing superposed epoch analysis on ACE and MPA LANL data, Eos Trans AGU, 88(52), Fall Meet. Suppl., Abstract SM33A-1115, 2007.
24. M. W. Liemohn, and **R. Ilie**, Data-model comparisons in the inner magnetosphere, GEM Workshop, Midway, Utah, June 18-22, 2007.
25. Ontiveros, P., F. Toffoletto, R. Wolf, M. W. Liemohn, and **R. Ilie**, Synthetic magnetogram calculations, GEM Workshop, Midway, Utah, June 18-22, 2007.
26. Ontiveros, P. A., F. R. Toffoletto, R. A. Wolf, J. Zhang, **R. Ilie**, and M. W. Liemohn, Calculation of synthetic ground magnetograms from current distributions calculated by large-scale magnetosphere-ionosphere coupling codes, Eos Trans AGU, 88(52), Fall Meet. Suppl., Abstract SM33B-1344, 2007.
27. M. W. Liemohn, **R. Ilie**, A. J. Ridley, J. U. Kozyra, M. F. Thomsen, and J.E. Borovsky, Testing the necessity of transient spikes in the drivers for creating a storm-time ring current, INVITED, Eos Trans AGU, 88(52), Fall Meet. Suppl., Abstract SM31E-03, 2007.
28. N. Yu Ganushkina, M. W. Liemohn, **R. Ilie**, M. Kubyshkina, and A. Ridley, Development of magnetospheric current systems during storms: MHD and event-oriented magnetic field modeling approaches, Eos Trans AGU, 88(52), Fall Meet. Suppl., Abstract SM22A-02, 2007.
29. **Ilie**, R., M. W. Liemohn, and J.-Ch. Zhang, Comparing reference time selections for superposed epoch analysis of storms, GEM Workshop, Snowmass, CO, June 26-30, 2006.
30. M. W. Liemohn, A. J. Ridley, J. U. Kozyra, J. Zhang, **R. Ilie**, M. F. Thomsen, and J. E. Borovsky, Are transient spikes in the near-Earth plasmasheet necessary for creating the storm-time ring current?, INVITED, Eos Trans. AGU, 87(36), West. Pac. Geophys. Meet. Suppl., Abstract U12A-01, 2006.
31. J. P. Sheerin, **R. Ilie**, E. L. Roesler, W. A. Bristow, B. Watkins, Initial Results from UHF and HF Radar Studies of Ionospheric Interaction Experiments at HAARP, 47th Annual Meeting of the Division of Plasma Physics, Abstract: KP1.00094, 2005.